

CHARLES STREET BRIDGE
Spanning the West River on Charles Street
Providence
Providence County
Rhode Island

HAER No. RI-34

HAER
RI
4-PROV,
192-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

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Location: Spanning the West River on Charles Street, approximately 400 feet east of State Highway 146 - Louisquisset Pike, City of Providence, Providence County, Rhode Island.

UTM: 19.299160 4635080

Quadrangle: Providence, Rhode Island, 1:24,000

Date of
Construction: 1894

Builder: R. F. Hawkins Iron Works
Springfield, Massachusetts

Present Owner: City of Providence
Division of Public Works
25 Dorrance Street
Providence, RI 02905

Present Use: Vehicular bridge with sidewalks, open to traffic.

Significance: The Charles Street Bridge is an early example of the use of prefabricated steel beams (riveted plate girders). The use of prefabricated beams simplified the design and construction of bridges, particularly after 1900. The Charles Street Bridge is the second oldest of four extant prefabricated plate girder highway bridges in Rhode Island that have been listed in, or determined eligible for, listing in the National Register of Historic Places. The bridge was fabricated by R. F. Hawkins Company of Springfield, Massachusetts, a regionally prominent bridge company. The bridge was determined eligible for listing in the National Register of Historic Places on January 10, 1989. Significant intact features include the bridge's girders, floor beams, decorative railings and stone abutments.

Project

Information: In 1985 the Rhode Island Department of Transportation, in cooperation with the Federal Highway Administration, initiated a study of the resurfacing, restoration and rehabilitation (3R) of a 1.2 mile segment of Charles Street, Providence. Included in this project is a study of the replacement of the Charles Street Bridge. As a result of the Rhode Island Department of Transportation's Historic Bridge Inventory, the bridge was determined eligible for listing in the National Register of Historic Places. Therefore, it fell under the historic preservation review process per Section 106 of the National Historic Preservation Act of 1966 and Section 4(f) of the Department of Transportation Act of

1966. The bridge is also an inventoried resource within the Blackstone River Valley National Heritage Corridor, which was established by an Act of Congress in 1986 (Public Law 99-647, November 10, 1986).

Per Section 9 of this act, any federal entity conducting or supporting activities affecting the Corridor shall consult with the Corridor Commission on the effects of said activities and to the maximum extent practicable, avoid or minimize adverse effects.

A draft Section 106 Preliminary Case Report with a draft Memorandum of Agreement was circulated for review in October 1991. An approved Memorandum of Agreement was ratified by the Advisory Council on Historic Preservation on February 6, 1992. This HAER documentation was undertaken as a mitigative measure per the Memorandum of Agreement.

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THE CROSSING

The Charles Street Bridge stands in the City of Providence's North End, a mixed commercial, residential and light industrial neighborhood. The bridge spans the West River, a tributary of the Moshassuck River. The confluence of the two rivers is approximately three-tenths of a mile to the east of the bridge.

From the seventeenth through mid-nineteenth centuries, the North End remained largely undeveloped. In 1806, the north segment of present-day Charles Street was laid out as part of the Louisquisett Turnpike, a main thoroughfare connecting Providence with the north central part of the state. It was probably at this time that the first of several successive wooden bridges was constructed at the crossing. More intensive development began in select locations after 1850. The West River and its several ponds provided the water power necessary for the production of textiles.

In 1850, the Silver Spring Bleachery began operations on a several acre parcel of land to the immediate east of the bridge and bordering the south side of the river. By 1864, the bleachery had been acquired by Henry Lippitt (governor of Rhode Island 1875-77) and Charles Merriman and incorporated as the Silver Spring Bleaching and Dyeing Company. The textile-finishing operation increased in size and production throughout the century. Many of the mill operatives resided in the expanding residential neighborhood to the north of the bridge.

After 1870, the Louisquisett Turnpike became a toll free road. That portion running through the North End became a municipally-owned and maintained road renamed Charles Street. In 1880, the City replaced the existing bridge with a new timber structure having a width of 51 feet and a span of 20 feet. Within a short period of time, structural problems associated with heavy usage and periodic closings due to flooding resulted in the need to replace this structure with a more substantial, elevated one. The City had the present plate-girder bridge erected in 1894. The fabricator was R. F. Hawkins Company of Springfield, Massachusetts, a regionally prominent bridge company. The bridge, with new granite-ashlar abutments was opened for travel on September 10, 1894. Alterations to the bridge have included raising the deck 18 inches in 1906 to improve geometrics to accommodate a trolley line, and periodic deck and stringer repairs and replacements.

THE BRIDGE

The Charles Street Bridge is a single span, steel plate girder structure. It is 32 feet long, 48.8 feet wide and has a clearance of six feet above the West River. The span length is 26 feet. The bridge consists of five riveted parallel plate girders, 15 inches by 30 inches in section, with angle stiffeners every two feet. The girders support 8 inch by 16 inch plate girder floor beams, which in turn carry wood stringers for the asphalt-paved wood-plank deck.

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Both sides of the bridge contain sidewalks with metal curbs and side plates. Wrought-iron railings have two heights of pickets with cast-iron Eastlake-style, chamfered end posts.

The use of prefabricated steel beams, as major structural elements of bridges, in this case riveted plate girders, became widespread after 1900. As larger prefabricated members became more commonly available, they could be used for longer spans. Today, this is the most common design for bridge construction. The Charles Street Bridge was fabricated by R. F. Hawkins Company a regionally prominent firm located in Springfield, Massachusetts.

B I B L I O G R A P H Y

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